

## CLAIMS:

1. A magnetic resonance imaging system for acquiring a high resolution image of a region of interest of a body, the MRI system comprising:
  - means for acquiring a low resolution whole-body plan scan image of the body,
  - means for identifying the region of interest of the body,
  - 5 - means for determining acquisition parameters for the high resolution image on the basis of the whole-body plan scan image,
  - means for acquisition of the high resolution image of the region of interest by making use of the determined acquisition parameters.
- 10 2. The system according to claim 1, further comprising a graphical user interface for an operator's selection of the region of interest in the whole-body plan scan image.
3. The system according to claim 1 or 2, wherein means for acquisition of the high resolution image are further adapted to move the region of interest of the body to a 15 region of optimum performance of the magnetic resonance imaging system.
4. The system according to any one of the claims 1 to 3, wherein the means for identifying the region of interest of the body are further adapted to extract body positioning parameters from the whole-body plan scan image, the body positioning parameters being 20 indicative of the anatomy, the geometry, the orientation and the mass of the body.
5. The system according to any one of the claims 1 to 4, wherein the means for identifying the region of interest of the body are further adapted to perform an assignment between the region of interest and a part of the body.
- 25 6. The system according to claim 4 or 5, wherein the means for determining the acquisition parameters are further adapted to determine the acquisition parameters with respect to the body positioning parameters and the assignment between the region of interest and a part of the body.

7. The system according to any one of the claims 4 to 6, wherein the acquisition means are adapted to dynamically determine the acquisition parameters with respect to the body positioning parameters and with respect to the body part being in the region of optimum performance of the magnetic resonance imaging system.

8. The system according to any one of the claims 4 to 7, wherein the acquisition parameters are subject to optimization with respect to a specific absorption rate model and/or peripheral nerve stimulation model.

10 9. The system according to any one of the claims 1 to 8, further comprising pattern recognition means for autonomously identifying parts of the body on the basis of the whole-body plan scan image.

15 10. A computer program product for a magnetic resonance imaging system for acquiring a high resolution image of a region of interest of a body, the computer program product comprising program means for:

- acquiring a low resolution whole-body plan scan image of the body,
- identifying the region of interest of the body,
- determining acquisition parameters for the high resolution image on the basis of the whole-body plan scan image,
- acquiring the high resolution image of the region of interest by making use of the determined acquisition parameters.

20 11. The computer program product according to claim 10, further comprising computer program means being adapted to identify a region of interest in the whole-body plan scan image by processing an operator's selection being made by means of a graphical user interface.

25 12. The computer program product according to claim 10 or 11, wherein the computer program means for acquisition of the high resolution image are further adapted to control the position of the region of interest of the body relative to a region of optimum performance of the magnetic resonance imaging system.

13. A method for acquiring a high resolution image of a region of interest of a body by making use of a magnetic resonance imaging system, the method comprising the steps of:

- acquiring a low resolution whole-body plan scan image of the body,
- identifying the region of interest of the body,
- determining acquisition parameters for the high resolution image on the basis of the whole-body plan scan image,
- acquiring of the high resolution image of the region of interest by making use of the determined acquisition parameters.

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14. The method according to claim 13, wherein body positioning parameters are extracted from the whole-body plan scan image in order to optimize acquisition parameters for the high resolution image with respect to a specific absorption rate model and/or peripheral nerve stimulation model.